

**REMARKS**

The Office Action mailed on June 22, 2006, has been reviewed and the comments of the Patent and Trademark Office have been considered. Prior to this paper, claims 1-14 were pending. By this paper, Applicant does not cancel or add any claims. Therefore, claims 1-14 remain pending.

Applicant respectfully submits that the present application is in condition for allowance for at least the reasons that follow.

**Claim Rejections Under 35 U.S.C. §103(a)**

In the Office Action, Claims 1, 2 and 4-6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Claypole (U.S. Patent No. 6,318,077) in view of Grant (U.S. Patent No. 6,272,850), with the remaining claims being rejected in view of these references when combined with various other references. In response, in order to advance prosecution, and without prejudice or disclaimer, Applicant amends claim 1 as seen above, and respectfully submits that these claims are allowable for at least the following reasons.

Applicants rely on MPEP § 2143, which states that:

[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

It is respectfully submitted that at least the first and third criteria of MPEP § 2143 cannot be met with the cited references in view of the claims now pending, and that the first criteria was not met in the Office Action in view of the claims as previously pending.

The Cited References Do Not Suggest All Claim Recitations

Even if the first requirement of MPEP § 2143 were to be considered satisfied in the Office Action (which it is not, as explained below), the cited references still do not meet the third requirement, which is that “the prior art reference (or references when combined) must teach or suggest all the claim limitations.”

Claim 1, as amended, recites an exhaust-heat recovery system for a vehicle, that includes, among other things, “an engine controller [(i)] configured to perform an incremental control for increasing the combustible components in the exhaust to be burned in the catalytic converter by means of changing an operation condition of the engine when a prescribed heating condition is unsatisfied, [(ii)] *wherein performance of the incremental control is dependent on a motion condition of the vehicle, a load condition of the engine, the operation condition of the engine, a condition of a coolant and a capacity of the catalytic converter.*” (Emphasis added.) In an exemplary embodiment of the invention of claim 1, as is detailed on pages 9-13 of the specification, when the engine is loaded (which is determined based on a signal indicating that the acceleration aperture of the engine has been turned on), incremental control of the combustible components will not be performed, and thus the combustible components in the exhaust to be burnt in the catalytic converter will not be increased. In contrast, incremental control is performed when a signal is received that the acceleration aperture is at zero, indicating that the engine is unloaded, and thus the combustible components in the exhaust to be burned in the catalytic converter will be increased.

Neither Claypole nor Grant teaches or suggests the above-quoted feature of claim 1. The Office Action recognizes that Claypole does not teach an engine controller (recitation “i”), and thus cannot teach that performance of the incremental control is dependent on the various phenomenon recited in claim 1 (recitation “ii”). The Office Action asserts that Grant teaches recitation “i.” Assuming *arguendo* that this is correct, Grant does not teach or suggest recitation “ii.” All that Grant teaches is adjusting an air/fuel ratio input into a combustion chamber to change the temperature of a catalytic converter. There is nothing in Grant that teaches or suggests that performance of an incremental control (again, it is

assumed *arguendo* that Grant teaches/suggests incremental control) is dependent on the phenomenon added to claim 1 in the above amendments.

The remaining cited references do not remedy the deficiencies of the Claypole-Grant combination.

In sum, even if the first requirement of MPEP § 2143 could be satisfied with the cited references, the third requirement of MPEP § 2143 cannot be satisfied, because the cited references do not teach each and every element of the invention of claim 1. Thus, the present claims are allowable.

Lack of Suggestion or Motivation to Modify or Combine the References

MPEP § 2143.01 states that “the prior art *must* suggest the desirability of the invention.” (MPEP § 2143.01, subsection 1, emphasis added.) The Office Action asserts that it would have been obvious “to utilize the control of Grant in the system of Claypole for the advantage of being able to bring a catalyst to operating temperature and maintain that temperature using no additional injection hardware.” Applicant submits that this is not sufficient motivation to modify Claypole to arrive at the present invention (assuming that all of the elements of claim 1 would be obtained, which they would not, as detailed above).

Claypole in its unmodified state is a system for bringing a catalyst to operating temperature and maintaining that temperature. Specifically, Claypole teaches that the fuel-fired heater burns fuel to add additional thermal energy to the engine exhaust gas stream to warm the catalytic converter. (Claypole, col. 2, lines 22-23.) Of course, Claypole does utilize a fuel-fired heater 32 to do so. Applicants presume that this is the “additional injection hardware” discussed in the Office Action, and thus an alleged desire to remove this heater *while still achieving the same results* of Claypole is the alleged motivation to combine the references. If such is the case, removing the fuel-fired heater 32 and implementing the teachings of Grant therein would strip Claypole of the ability to deliver heat “to areas of the vehicle requiring additional heat.” (Claypole, col. 2, lines 23-26.) This feature is an

important feature in Claypole. For example, Claypole teaches that the heat from the heater 32 may be used to heat a battery, thus enhancing battery performance. Therefore, it would not have been obvious to modify Claypole as proffered. This must logically be the case because, on the one hand, if the Claypole system retains the heater, there is no need to modify Claypole according to the teachings of Grant, as Claypole achieves maintenance of the temperature of the catalyst with the heater, and, on the other hand, the ordinary artisan would not have been motivated to remove the heater of Claypole because Claypole teaches that the heater is needed to heat other areas of the vehicle. The motivation proffered in the Office Action simply is not present in view of these two references.

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MPEP § 2144.05(III), entitled Rebuttal Of *Prima Facie* Case Of Obviousness, states that a “*prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention.” (MPEP § 2144.05(III), second paragraph, emphasis added, citations omitted.) As detailed above, Claypole teaches that it utilizes its heater 32 to both heat the catalyst and to heat other areas of the vehicle. Thus, even if it would have been obvious to modify Claypole to remove the heater and implement Grant therein to heat the catalyst, Claypole teaches away from such action because Claypole teaches that the heater is used for other requirements; other requirements that would not be met through the teachings of Grant. Thus, Claypole teaches away from the modifications proffered in the Office Action. Applicant therefore respectfully submits that to the extent that a *prima facie* case of obviousness has been established (which it has not), that case is hereby rebutted.

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MPEP § 2143.01, subsection 6 states that “the proposed modification cannot change the principle of operation of a reference – If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810 (CCPA 1959).” In *Ratti*, the CCPA held that the “suggested combination of references would require a substantial reconstruction and redesign

of the elements shown in the primary reference.” This substantial redesign would have resulted in changing a rigid seal to a resilient seal. Thus, a reference cannot be modified to render an invention obvious if the modification changes a principle of operation of the reference.

With the above in mind, it is respectfully submitted that since the teachings of Claypole rely on utilizing a separate heater (a separate heater that burns fuel independent of fuel burnt in the engine) to heat the catalyst, substituting Grant’s catalytic converter temperature control system for Claypole’s heater would change the principle of operation of Claypole. Since modifying Claypole in such a manner changes the principle of operation of Claypole, just as changing the rigid seal to a resilient seal was found to change the principle of operation in *Ratti*, “the teachings of [Claypole] are not sufficient to render the claims *prima facie* obvious.” (MPEP § 2143.01, emphasis added.)

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In summary, because of the lack of suggestion or motivation in the prior art to modify Claypole, the first requirement of MPEP § 2143 has not been met in the Office Action even prior to the above claim amendments, and, hence, a *prima facie* case of obviousness has not been established.

### Conclusion

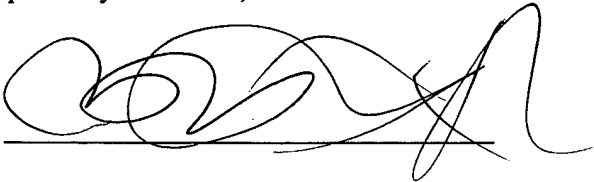
Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for

such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Examiner Edwards is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

By 

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